5.6 Wetlands

WSDOT modified the roadway design to avoid and minimize effects on wetlands. Construction of new roadway and stormwater facilities will fill just less than an acre of wetland. WSDOT will create more than an acre of new wetland area at nearby Kelsey Creek Park.

Wetlands are a valuable environmental resource. They can help to moderate stormwater flows by slowing down and retaining floodwater during periods of rain. They can help to minimize flooding downstream and to clean the water of materials such as dirt and oil. Wetlands can also provide vital habitat for many plants and animals. We are implementing measures that avoid, create, and enhance wetland resources in the Bellevue Nickel Improvement Project area.

Typical wetland vegetation found in the study area

What is our study area for this analysis?

The study area includes existing WSDOT right of way along a 2-mile section of I-405, between the interchange with I-90 and Southeast 8th Street in the City of Bellevue.

We identified the study area based on the project's anticipated area of disturbance. The construction area of disturbance includes all areas affected by proposed improvements to I-405, in addition to all areas affected by other necessary project elements, such as stormwater treatment facilities, noise walls, and surface street improvements.

Please refer to the Bellevue Nickel Improvement Project Wetlands Discipline Report in Appendix R (on CD) for a complete discussion of the Wetlands analysis.

Where are the wetlands in the study area and what are their characteristics?

During field investigations between September 2004 and April 2005, we delineated nine wetlands in the study area (see Exhibit 5.6-1). The Bellevue Nickel Improvement Project is located within the Mercer Slough and Kelsey Creek drainage basins. I-405 crosses Kelsey Creek near Southeast 8th Street. Kelsey Creek flows into Mercer Slough, which connects to Lake Washington.

Characteristics of a Wetland

Water at or close to the ground surface during a portion of the annual growing season.

Soils that lack oxygen during persistently wet conditions, technically known as anaerobic (without oxygen) conditions.

Vegetation that is able to grow and thrive under wet conditions.

Exhibit 5.6-1. Wetlands in the Study Area (Sheet 1 of 4)

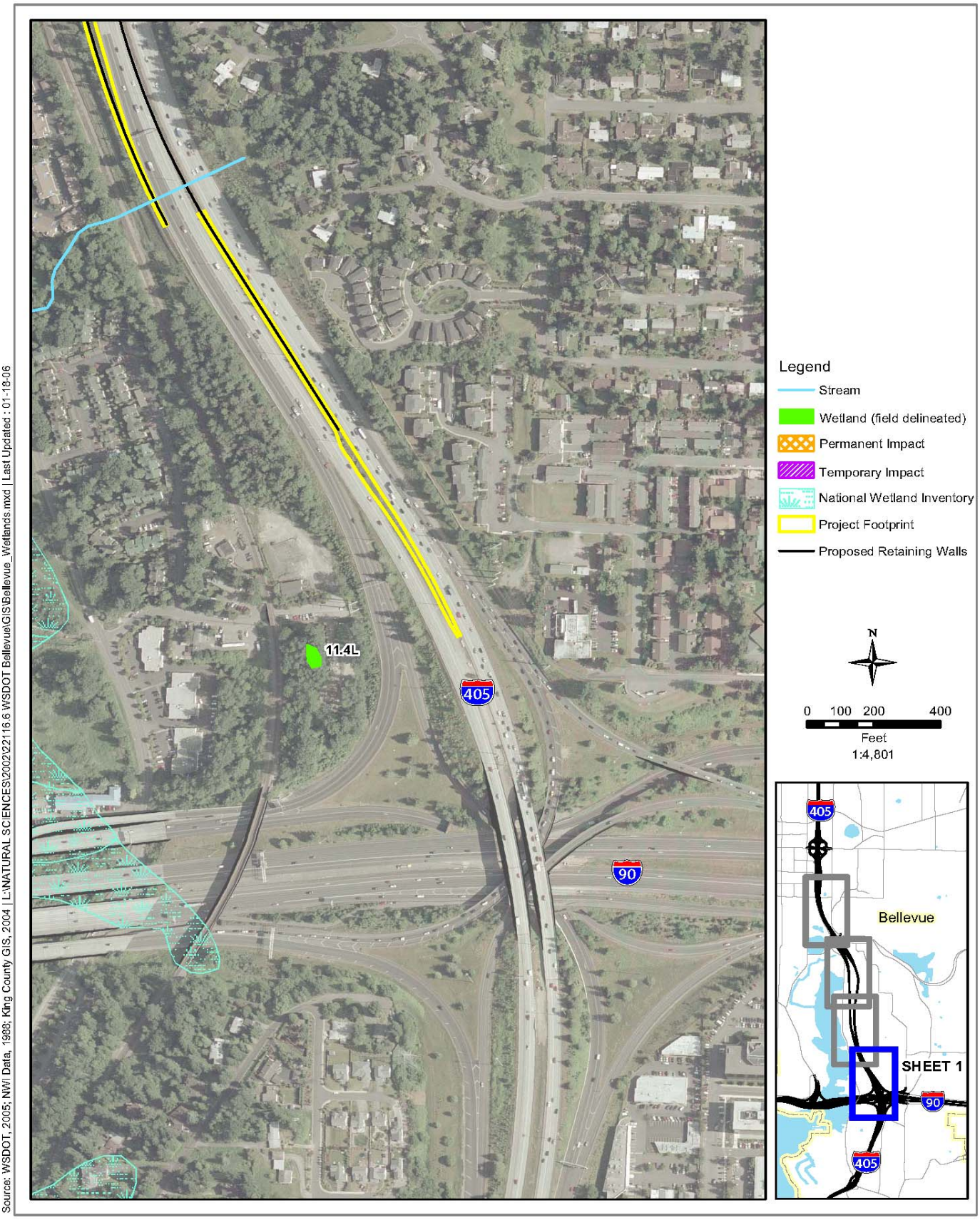


Exhibit 5.6-1. Bellevue Nickel Improvement Project Wetlands (Sheet 2 of 4)

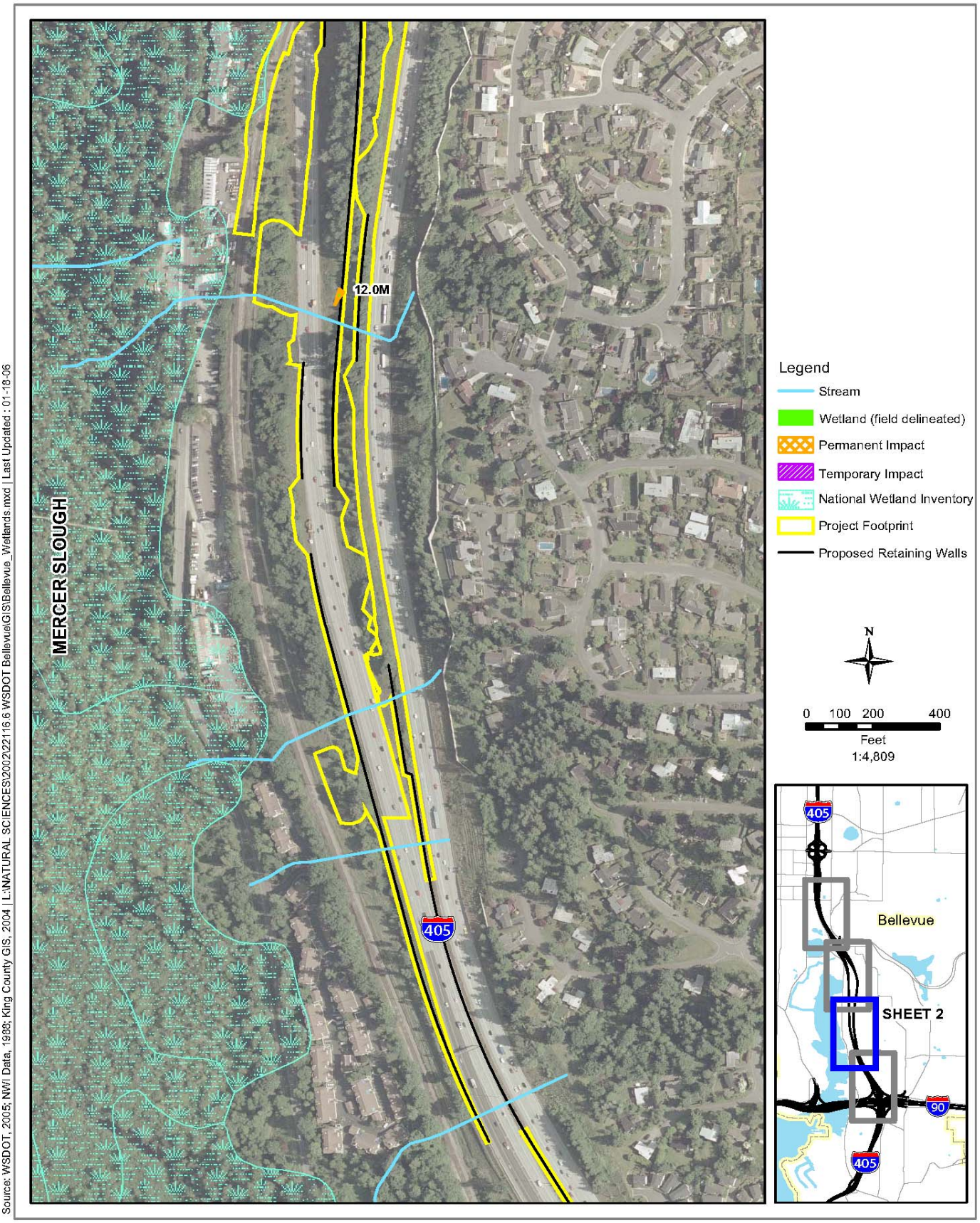


Exhibit 5.6-1.Wetlands in the Study Area (Sheet 3 of 4)

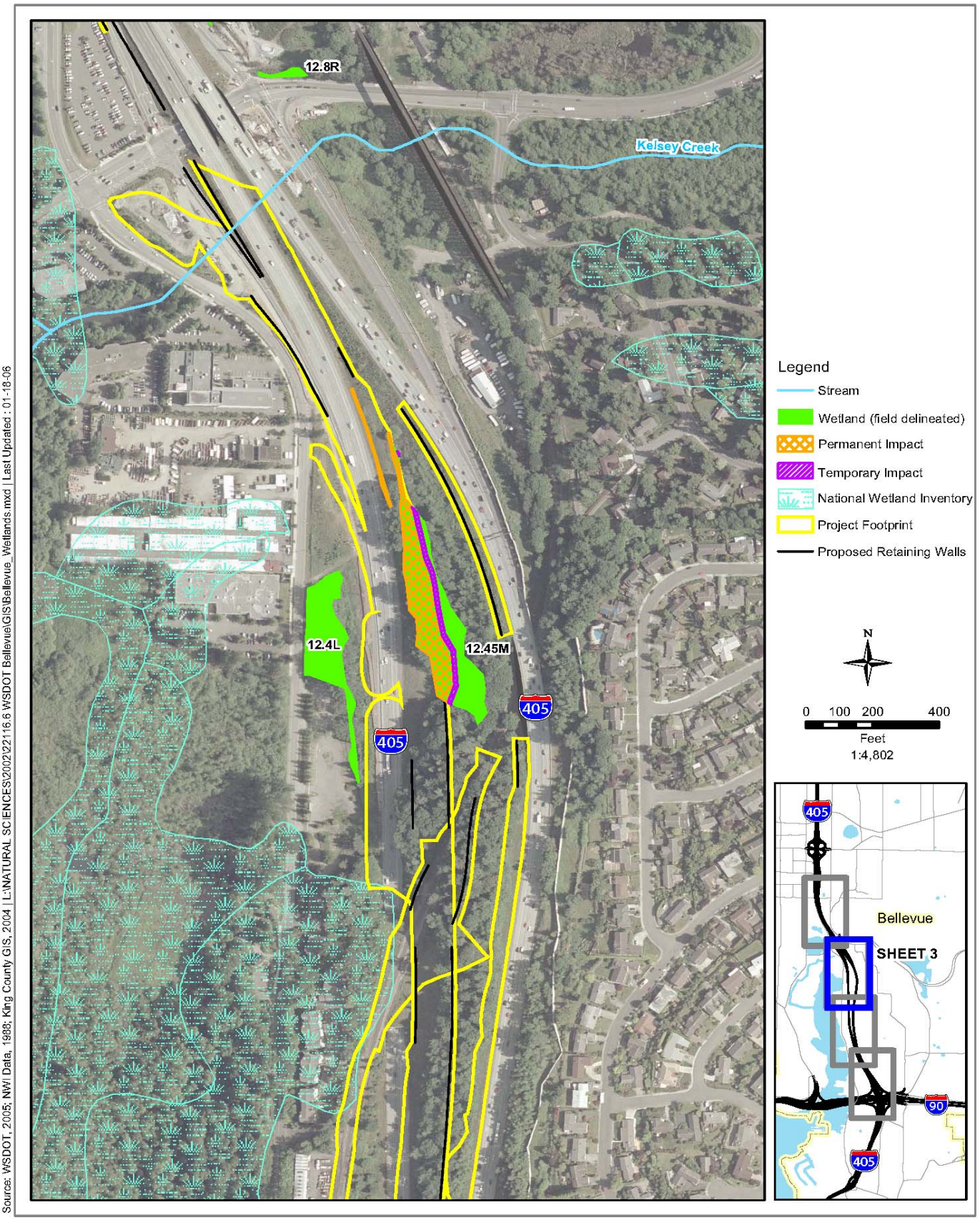
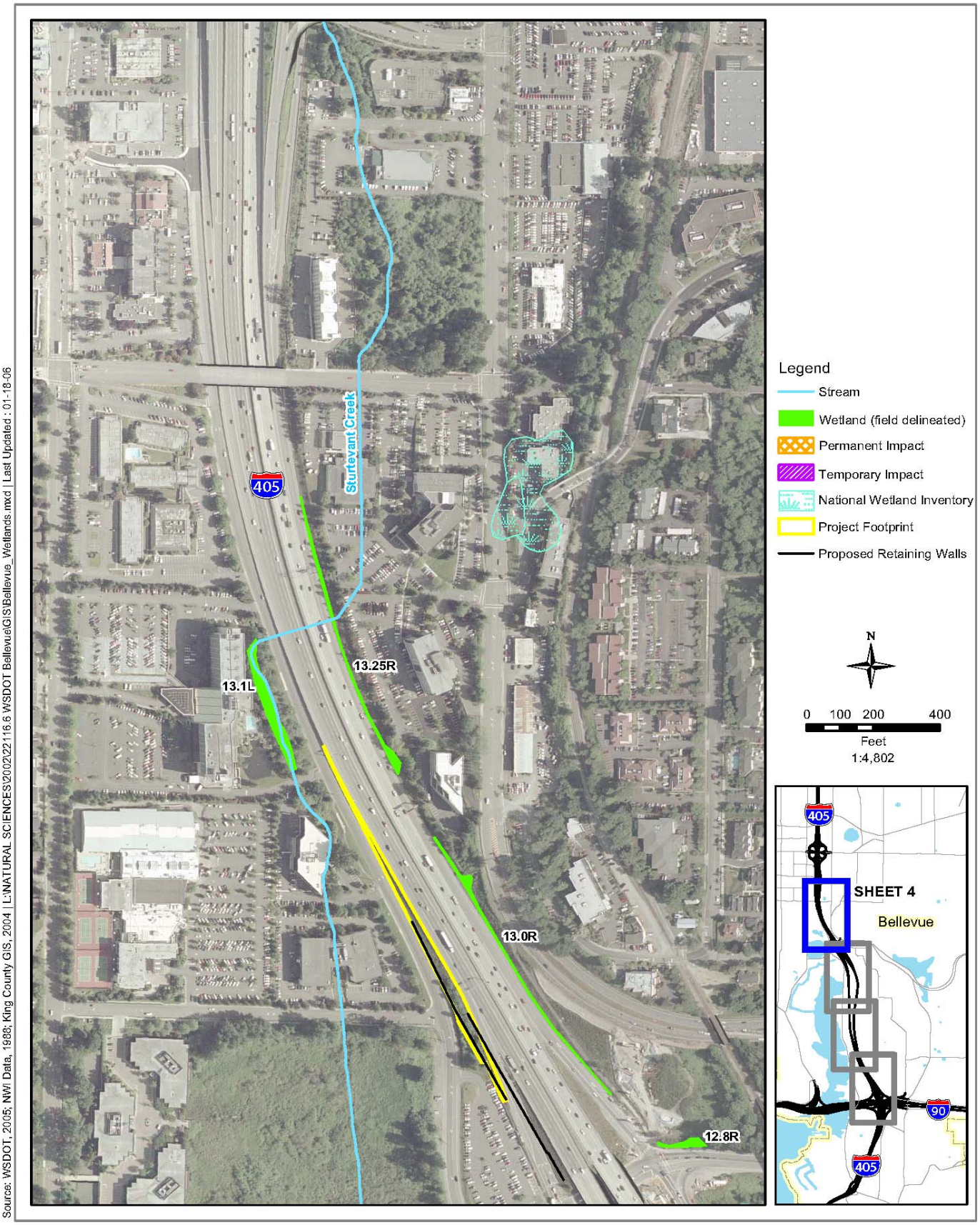


Exhibit 5.6-1. Wetlands in the Study Area (Sheet 4 of 4)



Of the wetlands delineated in the study area, the Mercer Slough basin contains five of the wetlands comprising 2.68 acres. The Kelsey Creek basin contains four wetlands covering 0.68 acre (Exhibit 5.6-2).

Exhibit 5.6-2. Wetland Ratings, I-405 Bellevue Nickel Improvement Project Study Area

Wetland	Size (acres)	Classification	Rating (Ecology)	Basin Location
11.4L	0.06	Palustrine Forested	III	Mercer Slough
12.0M	0.02	Palustrine Scrub-shrub	IV	Mercer Slough
12.4L	0.86	Palustrine Forested	II	Mercer Slough
12.45M	1.69	Palustrine Forested	III	Mercer Slough
12.5M	0.05	Palustrine Emergent	IV	Mercer Slough
12.8R	0.06	Palustrine Emergent	IV	Kelsey Creek
13.0R	0.16	Palustrine Emergent	IV	Kelsey Creek
13.1L	0.27	Palustrine Emergent	IV	Kelsey Creek
13.25R	0.19	Palustrine Emergent	IV	Kelsey Creek
TOTAL	3.36			

Wetland Definitions

Palustrine – Freshwater areas dominated by trees, shrubs, persistent emergents, mosses or lichen.

Emergent – A wetland characterized by erect, rooted, non-woody plants.

Forested – A wetland characterized by woody vegetation that is greater than or equal to 20 feet high.

Scrub-shrub – A wetland characterized by vegetation less than 20 feet high.

Mercer Slough Basin Wetlands

The five wetlands in the Mercer Slough basin receive water from hillside seeps, Kelsey Creek, surface water drainage, and groundwater. The majority of wetlands are roadside ditches dominated by bentgrass, velvetgrass, and soft rush. These wetlands receive road runoff and typically discharge to a catchbasin or culvert.

Three of the five wetlands in the Mercer Slough basin are forested wetlands. Wetland 11.4L is a 0.06-acre forested

wetland, located northwest of the I-405 and I-90 interchange south of Arrow Road, is dominated by black cottonwood and Oregon ash. Wetland 12.4L is a 0.86-acre wetland located between I-405 and 118th Avenue Southeast. Willow and red alder dominate the wetland, but it also contains reed canarygrass. It discharges to Mercer Slough through a culvert under 118th Avenue Southeast. Wetland 12.45M is located in the median north of the Wilburton Tunnel. It is a 1.69-acre wetland associated with a hillside seep and Median Stream. Willow, red alder, blackberry, and reed canarygrass dominate this wetland.

Kelsey Creek Basin Wetlands

All of the wetlands in the Kelsey Creek drainage are emergent wetlands dominated by reed canarygrass, soft rush, and bentgrass, with some alder, willow, and blackberry. Three of the wetlands are located in a roadside drainage ditch.

The Kelsey Creek basin contains four wetlands. These wetlands receive water from Kelsey Creek and its tributaries, surface water, and groundwater.

Wetland 13.1L is a small, narrow, riparian wetland associated with Sturtevant Creek.

Wetland Rating System

Ecology provides a rating system for wetlands so we have a standard to measure their overall worth. Ecology's rating system has four categories, ranging from Category I representing a unique or rare wetland type, to a Category IV wetland with the lowest levels of functions, often heavily disturbed. Using Ecology's rating system, we found that six of the nine wetlands in the study area belong to the lowest class of value (Category IV); two of them are a single category higher in value. One of the wetlands provides high levels of some functions (Category II) which this construction project will not affect, but none earned the first-quality ranking. The Ecology rating for each wetland in the study area is shown in Exhibit 5.6-2.

Ecology Wetland Rating System

- Category I wetlands represent a unique or rare wetland type; or are more sensitive to disturbance; or are relatively undisturbed and contain ecological attributes that are impossible to replace within a human lifetime or provide a high level of functions.
- Category II wetlands are difficult, though not impossible, to replace, and provide high levels of some functions.
- Category III wetlands have a moderate level of function. They have been disturbed in some ways, and are often less diverse or more isolated from other natural resources in the landscape than Category II wetlands.
- Category IV wetlands have the lowest levels of functions and are often heavily disturbed.

What functions do the wetlands in the study area provide?

Six of the nine wetlands identified in the Mercer Slough and Kelsey Creek basins support emergent and/or scrub-shrub vegetation. Three of the wetlands are classified as forested systems. Because the area has been extensively developed and most forested areas have been cleared, forested wetlands are

generally considered to be of higher value than emergent or scrub-shrub wetlands due to their limited presence in the study area and the benefits they provide.

We found that seven of the nine wetlands have the potential to provide valuable stormwater management functions, including flood flow alteration, sediment removal, nutrient and toxic material removal, and erosion control. Most of these wetlands have dense vegetation that can remove sediment and toxic materials present in road runoff.

Approximately half of the wetlands in the study area are likely to provide functions related to general habitat and habitat for amphibians, wetland-associated mammals, and/or wetland-associated birds.

Wetland 13.1L, the streamside wetland adjacent to Sturtevant Creek, is likely to provide general value as fish habitat. Wetlands 12.4L and 12.45M likely provide native plant richness.

How will the project affect wetlands?

To build the additional roadway and stormwater facilities, construction will occur in and adjacent to wetlands. Construction will remove trees and shrubs and convert unpaved areas to paved roadway. The project will permanently affect three of the nine wetlands identified in the study area and result in a total of 0.94 acre of wetland fill. All three wetlands are located within the roadway median between the northbound and southbound lanes.

Project construction will completely fill Wetlands 12.0M and 12.5M and will partially fill 12.45M. Wetland 12.0M is a small, 0.02 acre hillside seep wetland. Because it is on a slope and located in the roadway median, it does not provide any flood flow alteration, sediment removal, or habitat functions. Wetland 12.5M is a small 0.05 acre wetland. Filling this wetland will eliminate its ability to provide water quality improvement functions.

Wetland 12.45M at 1.69 acres, is the largest wetland affected by the project. Filling 0.87 acre of the western portion of this wetland will reduce its capacity to store stormwater, filter pollutants, and provide wildlife habitat. Because the unaffected portion of the wetland receives water from seeps, it will continue to be a wetland with the ability to filter pollutants and provide wildlife habitat functions.

How will construction activities temporarily affect wetlands?

Construction activities will temporarily disturb an additional 0.01 acres of wetland 12.9M, and 0.17 acres of wetland 12.45M. After construction of the project is complete, we will restore these areas and replant them with appropriate vegetation. We will develop a project-specific plan before construction to identify how restoration will occur.

Construction disturbance will result in a short-term loss of wetland functions. Habitat functions will temporarily decline as the planted trees, shrubs, and emergent plants become established. When we clear or trim vegetation, the wetlands will still retain some water quality and functions, although at diminished levels.

Erosion and deposit of sediment caused by construction activities will increase the amount of sediment settling within a wetland and reduce the quality of available habitat for invertebrate life and habitat for plants. Additionally, loose sediment will reduce the potential water quality and quantity benefits provided by those wetlands. However, we will implement certain BMPs, as required in the WSDOT Highway Runoff Manual (WSDOT 2004c), to avoid and minimize effects from erosion and deposit of sediment during construction (see Appendix B).

How would the No Build Alternative affect wetlands?

The No Build Alternative would have no permanent, temporary, or indirect effects on wetlands in the Bellevue Nickel Improvement Project study area. No wetland or wetland buffer would be filled or cleared under this alternative, and there would be no change to current moderation of stormwater flows or existing wildlife habitat functions.

Some wetlands that occur within the right of way are currently affected by the lack of forested upland buffer and the lack of modern stormwater control and management facilities. Wetland areas that occur within right of way areas that must be kept clear of trees for safety reasons and those wetlands that receive untreated or under treated stormwater runoff, would likely continue to be affected by these conditions. Water quality in these wetlands would continue to be affected by sediment

transport and erosion. Additionally, minor roadway safety improvements would continue to take place.

How will we compensate for unavoidable negative effects on wetlands?

We will compensate for adverse effects to wetlands and their buffers by creating within the boundaries of Kelsey Creek Park a wetland area that is larger (greater than an acre) and more functional than the area disturbed by the project (Exhibit 5.6-3). Our general concept will be to create a new wetland area that naturally transitions from forested land next to the Lake Hills Connector to wetlands within Kelsey Creek Park. We will remove soil from within this area to create wet conditions favorable for wetland vegetation.

How will we avoid or minimize adverse effects from construction?

We reviewed the wetland mapping and compared it to our current design for widening the roadways. We then modified the design specifically to avoid or minimize effects to wetlands. In most cases, we avoided permanent effects to wetlands by adjusting the project design. However, our need to adhere to WSDOT roadway design standards made it impossible to avoid affecting all wetlands.

During construction, we will minimize effects by following construction BMPs specified in the Highway Runoff Manual (WSDOT 2004c) and the BMPs included in Appendix B to this EA. We will also develop and implement a TESC and SPCC Plan to avoid effects to wetlands.

Exhibit 5.6-3. Proposed Wetland Mitigation Area